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NOTES ON *TULBAGHIA*: 1. A NEW SPECIES FROM THE EASTERN CAPE AND A LIST OF NEW LOCALITIES

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Abstract

A new species of *Tulbaghia* is described and illustrated with notes on its affinities and its chromosome morphology. A list of new localities for six species of the genus is presented together with a table of chromosome numbers.

Uittreksel

NOTAS OOR *TULBAGHIA*: 1. 'N NUWE SOORT VANAF DIE OOS-KAAP EN 'N LYS VAN NUWE VINDPLEKKE

'n Nuwe *Tulbaghia* soort word beskryf met bykomende inligting oor sy verwantskappe en chromosoom-morfologie. 'n Lys van nuwe vindplekke vir ses *Tulbaghia* soorte asook 'n tabel met chromosoomgetalle word aangebied.

In spite of the interesting morphology and charm of its flowers, *Tulbaghia* has until recently been one of the most under-collected genera of South African plants. The genus is also noteworthy cytogenetically especially as it possesses some of the largest chromosomes in the plant kingdom. This was noted by Dyer (1963) and by Vosa (1966a and b). Vosa (1975) has recently revised the cytotaxonomy of the genus describing six new species in the light of the material he collected in the late 'sixties. The present note relates to new material collected by the author during a recent visit to South Africa.

The collection number of the material together with the chromosome count and the type of chromosome complement are indicated in Table 1. Although about 30 collections of *Tulbaghia* were made during the visit, a certain number of plants were not in flower at the time of collection and have not been classified as yet. Their identity and related data will be the subject of further notes in this series. At least one collection has proved to be a new species which had already been recognised as such by the author in the *Tulbaghia* collection in the Herbarium of the Department of Plant Sciences, Rhodes University. The specimen in question had been collected by Mr D. Comins, Director of the Caffrarian Museum, King William's Town and, just twenty years and one day after his original collection, Mr Comins very kindly led me to the place, about 17 km from King William's Town near Tamaha.

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Table 1
CHROMOSOME COUNTS AND COLLECTION NUMBERS IN *TULBAGHIA*

Name	collection number	2n=	chromosome group
acutiloba Harv.	*Vosa 1487* (OX)	12	4
acutiloba Harv.	*Vosa 1572* (OX)	12	4
acutiloba Harv.	*Vosa 1613* (OX)	12	4
cominsii Vosa	*Vosa 1508* (OX)	12	3
cominsii Vosa	*Vosa 1781* (OX)	12	3
galpinii Schltr.	*Vosa 1780* (OX)	12	5
leucantha Baker	*Vosa 1611* (OX)	12	5
ludwigiana Harv.	*Vosa 1550* (OX)	12	2
ludwigiana Harv.	*Vosa 1552* (OX)	12	2
ludwigiana Harv.	*Vosa 1556* (OX)	12	2
montana Vosa	*Bayliss 7831* (OX)	12	6
nutans Vosa	*Vosa 1536* (OX)	12	2
transvaalensis Vosa	*Vosa 1644* (OX)	12	3

Tulbaghia cominsii Vosa, sp. n.

Diagnosis

Planta pusilla affinis *Tulbaghiae violaceae* Bak. sed differt statura minore, foliis glaucis, angustioribus (minus quam 1 mm latis), perigonio albido vel pallide-roseo.

Description (see also Figs 3 and 4)

Planta pusilla (80–)100(–150) mm alta; *foliis* glaucis, radicalibus 5–8, erecto-patentibus, angustioribus, linearibus-obtusis, basi dilatatis; *scapo* gracilis, debili, glaberrimo, apice paucifloro; *bracteis* angustissimis, scariosis; *pedicellis* inequalilongis, filiformibus, 10–15 mm longis, coloris plerumque purpureis; *perigonio* albido vel pallide-roseo; *segmentis* deltoideis, margine inflexis; *tubo* infundibuliforme, roseo vel pallide-purpureo quam segmentis longiore; *corona* constans ex 3-ligulis deltoideis, carnosulis, apicis bifidis vel integri-truncatis; *ovario* ovoideo; *stylo* perbrevi, stigmate capitato.

Type: CAPE—3227 (Stutterheim): In kommittee soil on rocky ground, near Tamaha, 17 km from King William's Town, (-BD), 28–9–57, *D. Comins 1718* (RU *10586*).

Chromosome number: 2n=12 (group 3, Vosa, 1975, p. 56); Figs 1 and 2.

A small plant with glaucous, very thin leaves. *Rootstock* a small corm mostly growing singly with one, or rarely two, growing points, 10–15 mm long and ca. 10 mm in diameter. *Roots* few, fleshy, somewhat spindle-shaped, tending to spread sideways. *Leaves* few, glaucous with a purplish base, 100–200 mm long, 0,8 mm wide, very thin. *Scape* (90–)150(–200) mm long. *Umbel* (3–)7(–10)

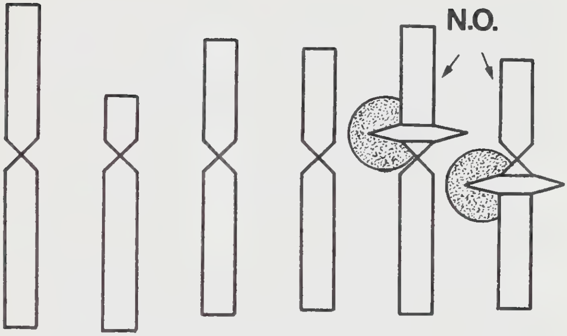

FIG. 1.
Diagrammatic representation of the haploid chromosome complement of *Tulbaghia cominsii* Vosa. Note nucleolar chromosomes (N.O.).

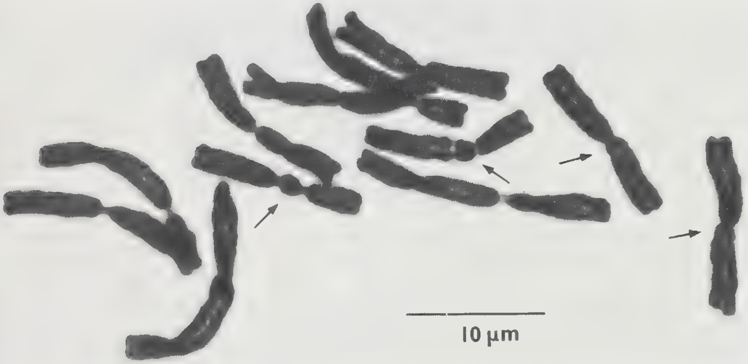

FIG. 2.
Mitotic metaphase chromosomes of *Tulbaghia cominsii* Vosa. Note the four nucleolar chromosomes (arrows).

flowered. *Pedicels* short, often purplish in colour. *Perianth segments* oblonglanceolate with inflexed edges, pure white or pinkish. *Corona* consisting of three separate deltoid, fleshy processes, about half as long as the perianth segments and of the same colour, with an entire or bifid tip. *Anthers* in two whorls. *Ovary* about 1,5 mm long, ovoid. *Style* 1 mm long; stigma capitate.

EXSICCATA AND LIVING MATERIAL

C.G.Vosa 1568, 28–10–77 (OX); *C.G.Vosa 1781*, 12–11–77 (OX), both from the type locality.

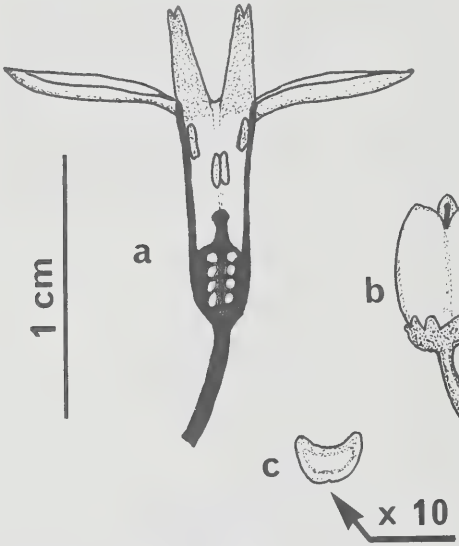

FIG. 3.
Tulbaghia cominsii Vosa: a. flower longitudinal section;
b. ripe capsule;
c. cross section of the leaf.

This very beautiful little species is related to *T. violacea* Bak. but differs considerably in having very thin, glaucous leaves, white, or very rarely pinkish flowers with a pink or purplish tube and a different chromosome complement. The glaucous, almost dusty colour of the leaves is very characteristic and is due to the white stomatal pores, which appear as whitish streaks under low magnification. The chromosome morphology is very interesting: it resembles that of *T. transvaalensis* Vosa and *T. macrocarpa* Vosa, two species very different from the present species whose morphological affinities lie with *T. violacea* Bak. This situation, which parallels that of *T. rhodesica* R.E.Fries and *T. cameroni* Baker (see Vosa, 1975, p. 52), is an indication of a two-track evolution in which the karyotype and the phenotype evolve independently and, in this case, along established pathways. There are no chromocentres in the interphase nuclei and Quinacrine staining gives uniform fluorescence along the chromosomes. C-banding produces only very thin bands in positions adjacent to the nucleolar constrictions.

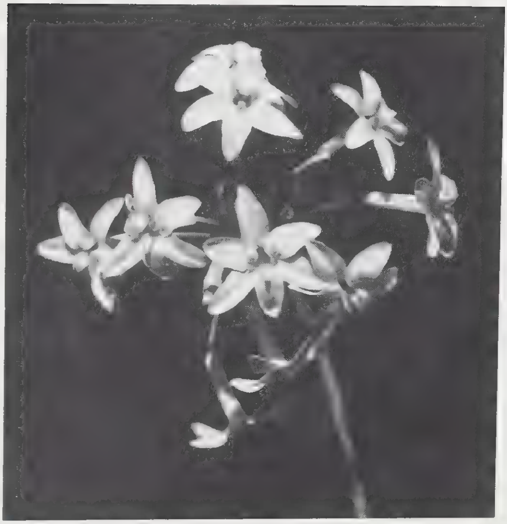

FIG. 4.
Tulbaghia cominsii Vosa: Inflorescence (natural size).

NEW LOCALITIES FOR SPECIES OF *TULBAGHIA*

Tulbaghia acutiloba Harv.

CAPE—3128 (Umtata): 20 km from Butterworth to Umtata, in grazing field at road side (-BD), 6–10–77, *Vosa 1613* (OX).

——3327 (Peddie): 13 km to Peddie crossroads from King William's Town, in open scrubland, about 200 m. from the left side of the road (-AA), 29–9–77, *Vosa 1572* (OX).

——3326 (Grahamstown): on koppie, just W. of Salem, in open scrubland (-CB), 21–9–77, *Vosa 1487* (OX).

Tulbaghia galpinii Schltr.

CAPE—3226 (Fort Beaufort): 11 km from Carlisle Bridge, near the old Cradock road on the left side from Grahamstown, in succulent scrub (-AD.)

Tulbaghia leucantha Baker

LESOTHO—2927 (Maseru): on a rocky outcrop in wet humus, 5 km to road junction from Maseru to Ladybrand (-BB), 26–10–77, *Vosa 1711* (OX).

Tulbaghia ludwigiana Harv.

CAPE—3326 (Grahamstown): 450 m. from crossroads to Salem from Grahamstown, on road to Vaalvlei, between Denver and Endwell Farms, in grassland (-BC), 28–9–77, *Vosa 1550* (OX); in a tussocky field just before the junction to Bathurst on the road to Vaalvlei from Grahamstown, near Glen Hope Farm, in open grassland, 28–9–77, *Vosa 1552*, (OX); at the crossroads to Martindale from Grahamstown, near The Grove and Show Park Farms, in grassland at roadside, 29–9–77, *Vosa 1572*.

Tulbaghia montana Vosa.

CAPE—3028 (Matatiele): 3 km N of Ramatsilitko Gate, Lesotho, in damp rock crevices, 8000 ft. (-DA), 14–11–76, *R.D.Bayliss 7831* (OX).

Tulbaghia nutans Vosa.

CAPE—3326 (Grahamstown): on left side of the road to Cradock from Grahamstown, near the track to the Vaalkrans, in succulent scrub (-BB), 25–9–77, *Vosa 1536* (OX). The finding of *T. nutans* Vosa in the Cape considerably extends the range of this species which was previously known only from the Northern Drakensberg (Vosa, 1975).

Tulbaghia transvaalensis Vosa.

TRANSVAAL—2330 (Tzaneen): on the top of Umkomani, Cyprus Farm, in red soil (-AD), 15–10–77, *Vosa 1644* (OX).

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